REMARKS

By this Reply, claims 1-19 are pending in the present application. Independent claims 1, 14 and 18 have been amended. Applicant thanks the Examiner for acknowledging the Preliminary Amendment filed August 5, 2003.

35 U.S.C. § 102 Rejection

Claims 1-14 and 16-19 are rejected under 35 U.S.C. § 102(e) as being anticipated by Sharma et al. (U.S. 7,136,189). This rejection is respectfully traversed.

Sharma is directed to a technical field clearly differing from the field of the present application. Indeed, Sharma is concerned with halftoning, i.e. converting the picture signal of a continuous-tone original into a corresponding signal showing only a limited number of levels. On the other hand, the present application relates to a module that performs the calculations needed to convert a color defined in a color space (for example the L*a*b* color space) to a given sub-set of colorants. For example, in Applicant's embodied invention, a sub-set of 4 colorants is chosen to render a given color out of 8 process colorants used by a printing system, such as a black (K), cyan (C), magenta (M), yellow (Y), red (R), green (G), blue (B) and white (W), as set forth in, e.g., [028] of the specification. Considering a printing flow process, the module described in the present application is executed well BEFORE a halftoning process, e.g., before the halftoning described by Sharma can take place.

More precisely, the passages of Sharma cited by the Examiner relate to a halftoning process applied to an image with continuous tone CMYK values for each pixel. The image is described by pixels having x-y coordinates in the plane of the image, using four separations planes C(x,y), M(x,y), Y(x,y), and K(x,y), e.g., see column 6 lines 14-48. The halftoning procedure of Sharma is described in more details from column 7, line 60 to column 8, line 67. The Black separation (K) is halftoned first (column 7, line 51). The next separation to be halftoned is Magenta (column 7, line 60). Clearly, in Sharma, the image to be printed is already separated. Before being able to actually print it, each one of the colour separation planes (C, M, Y, K) simply has to be halftoned, i.e. an array of dots has to be produced for printing purposes.

On the other hand, Applicant's embodied invention relates to a method for determining a sub-set of colorants (for example, in Figure 3, possible sub-sets are {KGBY}, {RGBY}, etc.) to render colours defined in a colour space such as L*a*b*, e.g., as shown in Figure 2. Once this sub-set is determined, it may be stored in a memory as a look-up table. When an image includes pixels described in a colour space, colour separation is executed based on this look-up table. That is to say, the method described in the present application enables the creation of a look-up table to be used by a colour management system to perform the colour separation of an image. This is clearly different from the method described in Sharma (which is applied to already separated colour planes).

To summarize, the method claimed in the present application enables the creation of look-up tables (e.g., claim 15) for converting colours described in a colour space to a sub-set of colorants, thus enabling later on colour separation of image signals. For instance, as recited in independent claim 1, the present invention is directed to "determining for the defined discrete colour points, different subsets of colorants and associated coverage fractions thereof, rendering each of said colour points, and calculating for each of said subsets an associated graininess value; determining lists of colorant subsets rendering the defined discrete colour points, said lists being consistent with respect to the attribution of a halftone screen to a colorant within a subset over said portion of the colour space." Other independent claims recite similar features in a varying scope. On the other hand, Sharma is directed to a halftoning method applied to colour planes of an image which is already separated. There is thus a clear and patentable distinction between Sharma and the claimed subject-matter of the present application.

In addition or in the alternative, Sharma clearly describes a multi-level halftone process using a single screen for a plurality of separations (column 3 lines 62-63). On the other hand, according to Applicant's invention, for each colorant of said subset, a selection of halftone screen among a plurality of available halftone screens is performed, e.g., see claims 1 and 18. Clearly, this will lead, later on in the image processing path, to the use of a distinct halftone screen for each colorant in the sub-set. As indicated in Applicant's embodied invention, halftone screens distinguish themselves from each other by their screen angle (e.g., see [038] of the

present application). This emphasizes the fact that Sharma does not anticipate the subject-matter of the claimed invention.

In view of the above comments, each independent claim and its dependent claims (due to the dependency) are patentable, and the rejection should be withdrawn.

35 U.S.C. § 103 Rejection

Claim 15 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Sharma et al. (U.S. 7,136,189) in view of Shaked et al. (U.S. 5,991,438). This rejection is respectfully traversed.

As discussed above, independent claim 15 is patentable over Sharma. Further, Shaked does not overcome the deficiencies of Sharma. Thus this rejection should be withdrawn.

CONCLUSION

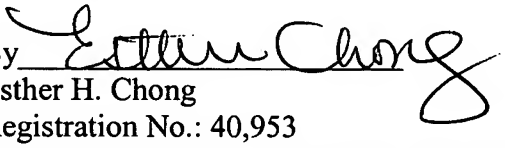
In view of the above remarks, it is believed that claims are allowable.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Esther H. Chong Reg. No. 40,953 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

Dated: August 20, 2007

Respectfully submitted,

By 

Esther H. Chong
Registration No.: 40,953
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road
Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Applicant